CLAIMS

1. Use of a non-wild type protofibril or compound(s) with protofibril forming ability for immunisation for prevention or treatment of Alzheimer's disease (AD).

2. Use according to claim 1, wherein said protofibril or compound(s) with protofibril forming ability comprises the following amino acid sequence KLVFFAEDV.

3. Use according to claim 1 or 2, wherein said protofibril or compound(s) with protofibril forming ability is mutated or modified in relation to corresponding wild-type counterparts.

4. Use according to claim 1, 2 or 3, wherein said protofibril or compound(s) with protofibril forming ability comprises an Aβ peptide (β-amyloid protein).

5. Use according to claim 4, wherein said protofibril or compound(s) with protofibril forming ability comprises a Aβ peptide related to AD.

6. Use according to claim 5, which is Aβ-Arc as disclosed in SEQ ID NO 1.

7. Use according to any of the above claims, wherein said profibril or compound(s) with protofibril forming ability is used in combination with Aβ peptides having mutations.

8. A peptide Aβ-Arc having the amino acid sequence disclosed in SEQ ID NO 1 comprising a glycine at position 22 instead of glutamic acid compared to wild type Aβ peptide.

9. Nucleic acid encoding the peptide according to claim 8.

10. Vector comprising the nucleic acid according to claim 9.

11. Host cell comprising the vector according to claim 10.

12. Transgenic non-human animal comprising the vector according to claim 10.

13. Transgenic non-human animal comprising a vector comprising the entire APP gene corresponding to NCBI database, accession no XM_009710, comprising the Arctic mutatation, i.e. nucleotide no. 2225 i mutated from A to G, leading to an amino acid substitution from Glutamic acid to Glycine.

14. Antibodies against the Aβ peptide according to claim 8.

15. A pharmaceutical composition, comprising the peptide according to claim 8 and physiologically acceptable excipients for human and veterinary use.

16. Use of the Aβ peptide according to claim 8 for high throughput screening to find substances with anti-protofibrillar activity.

17. Method for prevention or treatment of AD, comprising the step:
decreasing the formation of Aβ protofibrils and/or lower meric forms thereof in a subject having, or suspected of having, AD.

18. A method according to claim 17, wherein said step is by active immunisation with a non wild-type protofibril or compound(s) with protofibril forming ability, wherein said protofibril or compound(s) have enhanced protofibril forming ability and/or enhanced immunogenicity compared to the wild-type counterparts.

19. A method according to claim 17, wherein said step is by passive immunsation with antibodies against a non wild-type protofibril or compound(s) with protofibril forming ability, such as Aβ-Arc.

20. A method according to claim 17, wherein said step is by administration of agents with anti-protofibrillar activity.

21. A method according to claim 17,18,19 or 20, in combination with compound(s) having therapeutic benefits to AD patients